

1992
NORTON SOUND DISTRICT
SALMON REPORT
to the
Alaska Board of Fisheries

By
Fred Bue
and
Charles Lean

Regional Information Report* No. 3A92-23

Alaska Department of Fish and Game
Division of Commercial Fisheries
333 Raspberry Road
Anchorage, Alaska 99518-1599

December 1992

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1992 NORTON SOUND SALMON FISHERY, A REPORT TO THE BOARD

Commercial Fishery Overview

The Norton Sound commercial salmon fishing season typically begins on a date established by emergency order between June 8 and June 20 in Subdistricts 2, 3, 4, 5, and 6 and on July 1 in Subdistrict 1 as specified in regulation. Unusually late ice conditions in Norton Sound the Moses Point(3), Norton Bay(4), Shaktoolik(5), and Unalakleet(6) Subdistricts delayed opening the fishery until July 2 and the Golovin(2) Subdistrict opened July 3. The Nome(1) Subdistrict was delayed until August 1 due to management concerns. The season usually ends by regulation on August 31 in Subdistricts 1, 2, and 3, and September 7 in Subdistricts 4, 5, and 6. However, the 1992 fishing season in Subdistrict 1 was extended through September 5 and through September 3 in Subdistrict 3 (Figure 1).

The 1992 Norton Sound commercial salmon harvest totaled 199,933 fish, which was comprised of 4,541 chinook, 296 sockeye, 105,418 coho, 6,284 pink, and 83,396 chum salmon (Table 1). The chinook harvest was 29% below the previous 5-year average (1987-1991) and 45% below the previous 10-year average (1982-1991). The coho harvest set a new record which was 133% above the previous 5-year average and 114% above the previous 10-year average. The pink salmon harvest of 6,284 was 60% below the previous 5-year average and 89% below the previous 10-year average. The chum salmon harvest was 3% and 38% below the previous 5 and 10-year averages, respectively. Historical catch data for the Norton Sound District is presented in Table 1.

A total of 201 CFEC permits were renewed, of which 110 actually fished during the 1992 season. The number of participating fishermen this season tied for the lowest effort on record since total effort has been documented (1977 to present) and was well below the average effort for the previous 10 years which is 151 fishermen. The low effort during the 1992 season is attributed to the combination of expected below average chum salmon returns to northern Norton Sound and low market prices for all salmon species. The northern subdistricts had historically landed approximately 50% of the total commercial chum salmon harvest as compared to 3% this year (Table 2).

One domestic seafood buying company which based its operations in Unalakleet purchased the majority of commercially caught salmon in Norton Sound during 1992. A second domestic buyer operated in the Moses Point Subdistrict for four periods during the coho salmon run. In addition, a few individual fishermen sold their catches of fresh salmon locally and to wholesale distributors, as permitted under the catcher-seller status.

Commercial fishermen received approximately \$448,395 for their catch in 1992. These earnings rank as the third lowest value on record since 1976, and were 11% below the previous 5 year average of \$503,673. This low fishery value is attributed to the lack of competitive markets resulting in low prices paid per pound for all salmon species. Prices paid to the fishermen averaged \$0.66 per pound for chinook, \$0.80 per pound for sockeye, \$0.33 per pound for coho, \$0.22

per pound for chum, \$0.16 per pound for pink, and \$1.50 per pound for coho salmon roe. These data are summarized in Table 3.

Subsistence Fishery Overview

Household subsistence surveys were not conducted by the Commercial Fisheries Division during the 1992 season in Norton Sound villages due to budgetary restrictions, however the Subsistence Division did survey the village of Elim in late October. Twenty seven of the 75 households comprising the community were surveyed. The households that were surveyed were thought to account for 96 percent of the subsistence salmon harvest in that community. During 1991, the community was estimated to have harvested 312 chinook, 2,153 coho, 3,555 pink and 2,660 chum salmon. During 1992, the harvests were estimated to be 100 chinook, 1,281 coho, 6,152 pink and 1,260 chum salmon. Only the chum harvests are significantly below those recorded in the early 1980s.

Daily interviews of Unalakleet River and ocean subsistence fishermen were conducted at Unalakleet during the early portion of the fishing season in order to monitor the chinook salmon return. Total harvest by subsistence fishermen was not documented, however, daily effort and catch information was used, in combination with the Department's test net catches from the lower Unalakleet River and commercial catch information, to judge the timing and magnitude of the chinook salmon return. There is a growing trend to move subsistence nets from the river mouth out to the ocean in order to avoid large debris loads from spring runoff. It is unclear what affect this change in fishing technique will have on chinook salmon escapement.

Subsistence fishing permits are required by regulation for each household that fishes in the Nome Subdistrict. These permits identify the body of water to be fished, the type of gear used, and the bag limit which is specific to that body of water. In addition, each permit holder is given a catch calendar on which the permit holder records daily catches in numbers of each species of fish. If the subsistence fishers have filled their bag limits or would like to fish another location, they can be issued another permit generally for another area after the previous one has been returned. A preliminary summary of these data are presented in Table 3. A total of 155 salmon subsistence fishing permits were issued to families in the Nome area during the 1992 season.

Season Summary by Subdistrict

Nome - Subdistrict 1

The commercial salmon season was closed by E.O. prior to July 1, the day that it normally opens by regulation, and remained closed until August 1. This management action was taken in order to protect the expected low return of chum salmon to the subdistrict. Similar action was taken to close subsistence and sport fishing in the area. As the season progressed, subsistence regulations were liberalized on a stream by stream basis. Fishing was allowed when there

became little chance for removing significant portions of the chum return from each system and at the same time allowing the harvest of other species.

The pink salmon return was so unusually large that an E.O. was issued that allowed beach seining in previously closed areas with the condition that all chum salmon were to be returned to the water. In addition the subsistence and sport fishing bag limits were both doubled for pink salmon.

The coho salmon return also appeared strong in the Nome Subdistrict. The subsistence coho salmon bag limit was doubled and an E.O. was issued that increased the commercial fishing period length from 24 to 48 hours on August 14. The length of the commercial season was also extended by two additional 48 hour periods through September 5.

Two commercial fishermen caught and sold their catches as allowed by Catcher/Seller Permits. The total commercial harvest for the Nome Subdistrict was 1 chinook, 693 coho, and 185 chum salmon (Tables 4 and 5). One hundred sixty-two subsistence permits were issued for the Nome area. Harvest data will be presented in a later report following the return of the permits.

Golovin - Subdistrict 2

Since the Golovin Subdistrict has been experiencing decreasing chum salmon returns over the past 5 years, the 1992 Salmon Management Plan stated that the Golovin Subdistrict chum salmon commercial harvest would be limited to 10,000 chum in an attempt to protect the stock. The subdistrict was opened by emergency order July 3 for a single 24 hour period in order to test run strength and level of effort. There was no reported harvest and no fish buyers expressed intentions of operating in the subdistrict. On July 6 a second E.O. was issued which placed the subdistrict on the standard two 48 hour periods per week schedule because the fishing effort was low and it was unlikely the harvestable surplus of chum salmon that was anticipated would be harvested. One commercial fisherman began fishing and sold his own catch as allowed under the Catcher/Seller permit.

On August 13 a third E.O. was issued that increased the fishing period length to 7 days per week through the remainder of the season with the justification that the bulk of the chum salmon run was past, the coho return appeared strong, and the fishing effort was very low. The total season harvest for the Golovin Subdistrict was taken by one fisherman who sold 6 chinook, 9 sockeye, 2,085 coho, and 1,002 chum salmon (Tables 4 and 6). The fish were iced, flown to Nome and then on to Anchorage. The season closed by regulation August 31.

Moses Point - Subdistrict 3

The Moses Point Subdistrict has also experienced a decrease in size of the chum salmon return in recent years despite conservative management actions. The 1992 Management plan allowed for only one 24 hour commercial fishing period which was scheduled to open by emergency order on July 2. No fish were harvested commercially due to lack of market. As the season progressed the Department's counting tower on the Kwiniuk River closely monitored salmon passage. The chum

salmon return was very low and therefore no additional openings were allowed until the bulk of the chum salmon had entered the river.

Beginning on August 21 four special fishing periods were allowed which targeted coho salmon. Emergency Orders were used to set period dates and duration that fit into the buyer's schedule since he had irregular freight connections and limited hauling capacities. Twenty-one fishermen harvested 3,531 coho and 6 chum salmon (Tables 4 and 7).

Norton Bay - Subdistrict 4

Initially the chinook salmon return to southern Norton Sound was thought to be late due to the slow movement of sea-ice out of the area, but was later concluded to be poor as indicated by subsistence fisherman interviews at Unalakleet and the Department's test net in the Unalakleet River. Consequently, commercial fishing did not begin in the Norton Bay Subdistrict until July 2. The season opened by Emergency Order which placed the fishery on the standard two 48 hour period fishing schedule with a six inch maximum mesh size restriction. At the request of the only fish buyer operating in the subdistrict, a second E.O. was issued that changed the fishing schedule to three 24 hour periods per week. Salmon that were caught in the Norton Bay Subdistrict had to be tendered over 50 miles to Unalakleet where they were transferred and flown to Anchorage for processing. The buyer had only operated in the Norton Bay Subdistrict for three periods when he decided that it was no longer economical to continue. The total commercial harvest by 9 fishermen was 27 chinook and 1,787 chum salmon (Tables 4 and 8).

Shaktoolik - Subdistrict 5

Like the Norton Bay Subdistrict, the Shaktoolik Subdistrict commercial fishery was delayed until July 2. The fishery was initially opened by Emergency Order for one 48 hour period with a six inch maximum mesh size restriction. The reason for this action was to test the run strength of the chinook salmon which were slow in arriving. The fear was that chinook salmon were possibly holding or milling off the mouths of streams where they would be unusually vulnerable to the commercial fishery. The period did not harvest a large number of chinook which indicated that the return was late and expected to be weak.

A second E.O. was issued that reopened the subdistrict on July 6 and placed it on the standard two 48 hour periods per week fishing schedule with the mesh restriction continued. Both the opening and closing times for the period differed from most years, where it was changed to 8 a.m. rather than the typical 6 p.m. times. This was done at the request of the only major fish buyer operating in the area which allowed him to coordinate better freight connections and reduce waste. The salmon were iced in the round and tendered to Unalakleet where they were transferred to aircraft to be flown to Anchorage for processing. The Shaktoolik Subdistrict closed by regulation on September 7, however harvest records actually ended August 19 when fish buying operations ceased. It is likely some fishermen continued to fish and delivered their catch to Unalakleet where it was assigned incorrectly to that subdistrict's harvest values.

Twenty-five fishermen harvested 1,098 chinook, 56 sockeye, 14,660 coho, and 27,867 chum salmon for a combined total harvest of 43,681 fish (Tables 4 and 9). The chinook harvest was 32% below the previous 5 year average and 47% below the previous 10 year average catch. The coho salmon harvest was 100% and 60% above the previous 5 and 10 year average catches respectively. The chum salmon harvest was also good with 28% and 6% above respectively the previous 5 and 10 year average catches.

Unalakleet - Subdistrict 6

The Unalakleet Subdistrict supports the largest fishing effort in Norton Sound, and historically has not had problems obtaining buyers for all their salmon species with the exception of pink salmon. The commercial fishing management actions that opened periods and restricted mesh size were the same as those for the Shaktoolik Subdistrict because of their close proximity (shared boundary). However fishing times varied throughout the season to accommodate buyers and fishermen. The Unalakleet subsistence fisherman interviews and the Fish and Game test net in the Unalakleet River were used as indicators of salmon abundance and escapement in both Subdistricts 5 and 6.

One exception to the standard fishing schedule was when an E.O. was issued for a special pink salmon period in the Unalakleet Subdistrict on July 19. The period was at the request of a fish buyer that had a fish processing facility at St. Paul Island. The pink salmon were to be purchased at Unalakleet, tendered to St. Paul, then test processed through their pollock processing equipment. The period was originally to be open for 12 hours with a maximum mesh size restriction of 4 1/2 inches. Poor weather conditions delayed fishermen in setting their nets so a second E.O. was issued that extended the period an additional 12 hours.

During most years the standard fishing period opens and closes at 6 p.m.. This year that time was changed to 12 noon to accommodate the only fish buyer in the subdistrict who was attempting to minimize costs and spoilage by consolidating the various subdistrict's catches in one shipment. Many fishermen and their helpers objected to the new fishing time and circulated a petition in favor of changing the time back to 6 p.m. The issue was discussed with both parties and a compromise was reached. An E.O. was issued that changed the fishing time to 3 p.m. beginning July 23. On August 1 an unanticipated large harvest of coho salmon was landed and the buyer was unable to ship the entire catch. Approximately 12,000 pounds of fish spoiled. Both the local buyer and the parent company stated that they could not continue to buy salmon until 3 p.m. on Saturdays. Therefore another E.O. was issued that returned the fishing times to 12 noon beginning August 6 through the remainder of the season in order to prevent spoilage.

A total of 71 fishermen harvested 3,409 chinook, 229 sockeye, 84,440 coho, 6,284 pink, and 52,547 chum salmon for a total combined harvest of 146,918 fish (Table 4 and 10). The chinook salmon harvest was 17% below the previous 5 year average and 38% below the previous 10 year average catch. The coho harvest was 135% and 134% above the previous 5 and 10 year average catches, respectively. The chum

salmon harvest was also good at 107% and 39% above their respective previous 5 and 10 year average catches.

Only one primary domestic buyer operated through nearly the entire season, ceasing operations August 31. Most of the salmon were flown out of Unalakleet, iced in-the-round, to Anchorage and bound for fresh markets or for further processing. The Norton Sound Fishermen's Co-op plant did not operate, however, this facility was leased to receive and ice the salmon delivered dockside. In addition, a few fishermen sold some of their catch to individuals and local businesses as permitted under the catcher-seller regulations.

Escapement

Table 11 lists aerial survey and tower escapement counts in the major index streams of Norton Sound. Surveying conditions were generally good through most of the chum salmon season. Unfortunately record setting numbers of pink salmon in the rivers led to species identification problems which resulted in low or unacceptable chum salmon surveys. The weather turned rainy in the late summer which created marginal counting conditions and resulted in surveys that varied between fair to poor throughout Norton Sound. The Nome Subdistrict received the most intensive survey efforts because salmon stocks local to the Nome area are limited, easily accessed by road system, and exposed to extensive subsistence and sport fishing pressure. Several aerial and boat surveys were conducted on the Nome River. The counting tower on the Kwiniuk River in the Moses Point Subdistrict operated as usual and had good counting conditions with no breaks in the regular counting schedule.

Chinook

The Unalakleet and Shaktoolik Subdistricts are the primary chinook salmon producers in Norton Sound. Although on a smaller scale, the Norton Bay, Moses Point and Golovin Subdistricts have experienced gradually increasing chinook returns in recent years. Chinook salmon escapement surveys were below average in the Unalakleet and Shaktoolik Subdistricts. Daily subsistence fishermen interviews conducted at Unalakleet and the Department's test fish project in the Unalakleet River also suggested below average escapement levels.

Chum

Chum salmon escapements in the Nome Subdistrict were very difficult to quantify due to the large numbers of pink salmon. An example is the Nome River where the chum salmon escapement goal is 2,000 fish and the estimated number of pink salmon in the river was 255,700. One possible indicator of how the subdistrict did was the Eldorado River which receives very few pink salmon. It's chum salmon escapement estimate was 7% below it's escapement goal.

Chum salmon escapements in the Golovin and Moses Point Subdistrict streams were also difficult to determine from aerial surveys due to the large number of pink salmon. Fortunately the Department has a counting tower on the Kwiniuk River

located in the Moses Point Subdistrict. The preliminary expanded tower count was 11,546 chum salmon. The count was approximately 40% below the revised escapement goal target of 19,500 chum salmon past the tower.

Aerial surveys for chum salmon in the Norton Bay Subdistrict were mixed with the Inglutalik River below it's escapement goal and the Ungalik River above it's chum escapement goal. The Shaktoolik and Unalakleet River systems also had the species identification problem due to high pink returns. With both the commercial catches above average and the Department's test fish catch, which set a new record for chum salmon, the escapement was assumed to be adequate.

Coho

Coho salmon are found in nearly all of the chum producing streams throughout Norton Sound with the major commercial producers being the Unalakleet and Shaktoolik Subdistricts. Because of the inclement weather normally experienced in this area during August and September, escapement data for all subdistricts is intermittent. Most streams in the Nome Subdistrict were flown under fair conditions while the rest of Norton Sound was flown under poor conditions or not attempted due to unacceptable conditions.

Overall, coho salmon escapements appeared to be good. Streams surveyed in the Nome Subdistrict were above average and fishermen reports from the Nome and Golovin Subdistricts indicate at least average coho salmon returns. The Kwiniuk River had a low aerial count, but was surveyed under poor conditions. However the commercial fishery, that took place in the Moses Point Subdistrict well after the peak of the coho run, had better than expected catches over a longer period of time which indicates good coho salmon returns to the subdistrict. Survey conditions were also poor in the Shaktoolik and Unalakleet Subdistricts, but unusually high commercial catches in both subdistricts and record test fish catches indicate a strong coho salmon return and good escapement.

Pink

Pink salmon returns to Norton Sound have recently been on an odd/even year cycle with the even years typically much larger than the odd years. This year the pink salmon escapement levels were one to two orders of magnitude above even year averages throughout the District. Both the Kwiniuk River counting tower and the Unalakleet River test fish project set new pink salmon records.

Management Concerns

Chum salmon stocks have declined throughout Norton Sound over the past five years with escapements in the northern subdistricts continuing to be a major concern. Good chum salmon indices was not available this season for the Nome and Golovin Subdistricts, but even optimistic estimates near escapement goals would reflect very poor returns. Most of the opportunity for subsistence chum harvest was

eliminated in the Nome Subdistrict and there was a very limited commercial chum harvest in the Golovin Subdistrict.

The recent attention given to the low levels of chum salmon stocks in Norton Sound at the 1991/1992 Board of Fish meetings initiated a re-evaluation of the Kwiniuk River chum salmon escapement goal. The net result of the study was to reduce the chum salmon escapement goal from 25,000 fish to an escapement target goal of 19,500 chum salmon past the counting tower. This year's preliminary expanded tower count of 11,546 is approximately 40% below the revised target goal and 70% below the previous escapement goal.

There were only 6 chum salmon commercially harvested in the Moses Point Subdistrict and subsistence fishermen had little success catching chum due to the large number of pink salmon. Management must continue to be conservative since spawner/recruit relationships do not seem to predict run strength adequately in the subdistrict. There is also the possibility that this season's pink salmon return may adversely affect chum salmon spawning success in a way similar to over-escapement where there may have been too much competition for space on the spawning grounds.

The Unalakleet Subdistrict has experienced a black market fishery for king salmon over the past several years. In order to maintain escapement and provide subsistence opportunity, the legitimate commercial fishery has been cut back by delaying the opening and keeping fishing periods to 24 hours in length. Subsistence fishing has also been restricted during early summer to the lower section of the river in order to prevent the untraditional seining of pools where king salmon mill. More recently there have been complaints that coho salmon strips are now being illegally marketed outside of the local area. The illegal sale of salmon strips will continue to be a matter of concern in upcoming years.

1993 Outlook

Run forecasts and harvest projections for the 1993 commercial salmon season are based on qualitative assessments of brood year returns, subjective determinations of fresh water over-wintering survival and ocean survival, and projections of local market conditions. Salmon buyers will probably operate in only half the subdistricts of Norton Sound during 1993. The chinook return is expected to be average. Chinook commercial harvests are expected to range from 6,000 to 8,000. Pink salmon are expected to be strong particularly for the odd year cycle. In recent years, there has been no market for Norton Sound pink salmon and none is expected during 1993. Should a market develop for pink salmon or for any species where a surplus exists, harvests could markedly increase. Chum and coho salmon escapements were not observed during the 1993 brood's parent year (1989) due to high water and inclement weather conditions. A weak return of chum salmon is expected, but the 1992 return and age composition of the coho return indicates an above average coho return. Harvests of chum are expected to range from 50,000 to 80,000. Commercial coho harvests are expected to range from 50,000 to 80,000.

Table 1. Commercial salmon catches by species, Norton Sound District, 1961-1992.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1961	5,300	35	13,807	34,327	48,332	101,801
1962	7,286	18	9,156	33,187	182,784	232,431
1963	6,613	71	16,765	55,625	154,789	233,863
1964	2,018	126	98	13,567	148,862	164,671
1965	1,449	30	2,030	220	36,795	40,524
1966	1,553	14	5,755	12,778	80,245	100,345
1967	1,804	-	2,379	28,879	41,756	74,818
1968	1,045	-	6,885	71,179	45,300	124,499
1969	2,392	-	6,836	86,949	82,795	178,972
1970	1,853	-	4,423	64,908	107,034	178,218
1971	2,593	-	3,127	4,895	131,362	141,977
1972	2,938	-	454	45,182	100,920	149,494
1973	1,918	-	9,282	46,499	119,098	176,797
1974	2,951	-	2,092	148,519	162,267	315,829
1975	2,393	2	4,593	32,388	212,485	251,861
1976	2,243	11	6,934	87,916	95,956	193,060
1977	4,500	5	3,690	48,675	200,455	257,325
1978	9,819	12	7,335	325,503	189,279	531,948
1979	10,706	-	31,438	167,411	140,789	350,344
1980	6,311	40	29,842	227,352	180,792	444,337
1981	7,929	56	31,562	232,479	169,708	441,734
1982	5,892	10	91,690	230,281	183,335	511,208
1983	10,308	27	49,735	76,913	319,437	456,420
1984	8,455	6	67,875	119,381	146,442	342,159
1985	19,491	166	21,968	3,647	134,928	180,200
1986	6,395	233	35,600	41,260	146,912	230,400
1987	7,080	207	24,279	2,260	102,457	136,283
1988	4,096	1,252	37,247	74,604	107,967	225,166
1989	5,707	265	44,091	123	42,625	92,811
1990	8,895	434	56,712	501	65,123	131,665
1991	6,068	203	63,647	221	86,871	156,010
1992	4,541	296	105,418	6,284	83,394	199,933
5-Yr Avg ^a						
	6,369	472	45,195	15,542	81,009	148,587
10-Yr Avg ^b						
	8,239	280	49,284	54,919	133,610	246,332
^a 1987-1991						
^b 1982-1991						

Table 2. Norton Sound salmon dollar value and average price paid to the fishermen, by species, 1992.

Species	Dollar value	Average price paid
Chinook	\$ 37,997.00	0.66
Sockeye	1,809.00	0.80
Coho	270,734.00	0.33
Coho Roe	3,962.00	1.50
Chum	130,976.00	0.22
Total	\$ 448,395.00	

Table 3. Nome area subsistence salmon catches, Norton Sound, 1992. a

Location	Permits Issued	Permits Returned	Permits Fished	Chinook	Sockeye	Coho	Pink	Chum	Total
Nome River	32	17	10	1	0	193	639	28	861
Marine Waters	75	41	31	122	84	486	2,380	1,321	4,393
Sinuk River	0	0	0	0	0	0	0	0	0
Eldorado River	11	6	3	0	0	81	0	12	93
Flambeau River	4	1	1	1	2	89	0	6	98
Snake River	6	5	2	1	0	46	35	6	88
Soloman River	13	13	12	0	0	0	1,320	0	1,320
Bonanza River	9	8	5	6	0	81	445	1	533
Safety Sound	3	3	2	0	0	0	176	1	177
Port Clarence b	8	4	1	0	12	0	1	7	20
Totals	161	98	67	131	98	976	4,996	1,382	7,583

a Preliminary summary table includes permits returned as of 11/4/92.

b Port Clarence location includes the Pilgrim and Kuzitrin Rivers.

Table 4. Norton Sound commercial salmon harvest summary by subdistrict, 1992

		Subdistricts					Total	
		1	2	3	4	5	6	Number
Number of Fishermen		2	1	21	9	25	71	110 ^a
Chinook	Number	1	6	0	27	1,098	3,409	4,541
	Weight(lbs.)	10	68	0	389	13,707	43,397	57,571
Sockeye	Number	2	9	0	0	56	229	296
	Weight(lbs.)	15	71	0	0	417	1,748	2,251
Coho	Number	693	2,085	3,531	0	14,660	84,449	105,418
	Weight(lbs.)	5,156	16,405	20,705	0	111,863	666,277	820,406
Coho Roe	Number	0	0	—	0	0	0	0
	Weight(lbs.)	0	0	2,641	0	0	0	2,641
Pink	Number	0	0	0	0	0	6,284	6,284
	Weight(lbs.)	0	0	0	0	0	18,230	18,230
Chum	Number	185	1,002	6	1,787	27,867	52,547	83,394
	Weight(lbs.)	1,313	6,926	28	13,006	198,487	375,585	595,345
Totals	Number	881	3,102	3,537	1,814	43,681	146,918	199,933
	Weight(lbs.)	6,494	23,470	23,374	13,395	324,474	1,105,237	1,496,444

^a Some fishermen fished more than one subdistrict.

Table 5. Commercial salmon catches from Nome, Subdistrict 1, set gill nets, 1992.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort							
				Chinook	CPUE	Sockeye	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Sockeye	Coho	CPUE	Chum	CPUE
1	8/03-8/04	24	0														
2	8/06-8/07	24	1	1	0.04	0	91	3.79	22	0.92	1	0.04	0	91	3.79	22	0.92
3	8/10-8/11	24	0								1	0.04	0	91	3.79	22	0.92
4	8/13-8/15	48	2	0	0.00	0	409	4.26	59	0.61	1	0.01	0	500	4.17	81	0.68
5	8/17-8/19	48	1	0	0.00	0	35	0.73	10	0.21	1	0.01	0	535	3.18	91	0.54
6	8/20-8/22	48	0								1	0.01	0	535	3.18	91	0.54
7	8/24-8/26	48	2	0	0.00	2	124	1.29	79	0.82	1	0.00	2	659	2.50	170	0.64
8	8/27-8/29	48	0						0		1	0.00	2	659	2.50	170	0.64
9	8/31-9/02	48	1	0	0.00	0	34	0.71	15	0.31	1	0.00	2	693	2.22	185	0.59
10	9/03-9/05	48	0								1	0.00	2	693	2.22	185	0.59

All salmon sold as permitted under Catcher/Seller status.

No pink salmon were sold.

Total hours fished = 216

Total number of permits used = 2

Table 5. Commercial salmon catches from Golovin, subdistrict 2, Norton Sound, set gill nets, 1992.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort								
				Chinook		Sockeye		Coho	CPUE	Chum	CPUE	Chinook	CPUE	Sockeye	Coho	CPUE	Chum	CPUE
1	7/03-7/04	24	0															
2	7/06-7/08	48	0															
3	7/09-7/11	48	0															
4	7/13-7/15	48	1	1	+	1	+			221	4.60	1	0.02	1	0	221	4.60	
5	7/16-7/18	48	1	0	+	0	+			262	5.03	1	0.02	1	0	483	5.03	
6	7/20-7/22	48	1	1	+	3	+	6	0.13	97	2.02	2	0.02	4	6	0.13	580	4.03
7	7/23-7/25	48	1	1	+	1	+	9	0.19	72	1.50	3	0.02	5	15	0.16	652	3.40
8	7/27-7/29	48	1	0		0		15	0.31	53	1.10	3	0.02	5	30	0.21	705	2.94
9	7/30-8/01	48	1	1	+	0		168	3.50	35	0.73	4	0.02	5	198	4.12	740	2.57
10	8/03-8/05	48	1	0		1	+	212	4.42	76	1.58	4	0.02	6	410	4.27	816	2.43
11	8/06-8/08	48	1	2	0.04	3	0.06	347	7.23	87	1.81	6	0.03	9	757	5.25	903	2.35
12	8/10-8/12	48	1	0		0		305	6.35	26	0.54	6	0.02	9	1062	5.53	929	2.15
13	8/13-8/17	96	1	0		0		284	2.96	18	0.19	6	0.02	9	1346	4.67	947	1.79
14	8/17-8/20	96	1	0		0		510	7.08	26	0.36	6	0.02	9	1856	5.15	973	1.62
15	8/20-8/24	96	1	0		0		152	1.58	27	0.28	6	0.02	9	2008	4.40	1,000	1.44
16	8/24-8/27	96	1	0		0		77	1.07	2	0.03	6	0.02	9	2085	3.95	1,002	1.30
17	8/27-8/31	96	0									6	0.02	9	2085	3.95	1,002	1.30

All salmon sold as permitted under Catcher/Seller status.
 Total hours actually fished = 816
 Total number of permits used = 1

Table 7. Commercial salmon set gillnet catches from Moses Point, Subdistrict 3, Norton Sound, 1992.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort					Cumulative Catch and Catch per Unit Effort					
				Chinook	CPUE	Coho	CPUE	Chum	CPUE	Chinook	Coho	CPUE	Chum	CPUE
1	7/02-7/03	24	0	NO BUYER										
2	8/21-8/22	34	11	0		934	2.50	0		0	934	2.50	0	
3	8/24-8/26	48	13	0		1,145	1.83	6	0.01	0	2,079	2.08	6	+
4	8/28-8/29	34	13	0		709	1.60	0		0	2,788	1.94	6	+
5	9/02-9/03	33	9	0		743	2.50	0		0	3,531	2.03	6	+

Number of hours actually fished = 149

Number of permits used = 21

21 fishermen sold 2,641 pounds of coho roe which recovered from same fish reported in catch.

Table 8. Commercial salmon set gillnet catches from Norton Bay, Subdistrict 4, Norton Sound, 1992.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort					
				Chinook	CPUE	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Coho	CPUE	Chum	CPUE
1	7/02-7/04	48	0							0					
2	7/06-7/07	24	2	3	0.06			257	5.35	3	0.06			257	5.35
3	7/08-7/09	24	9	14	0.06			1,027	4.75	17	0.06			1,284	4.86
4	7/10-7/11	24	8	10	0.05			503	2.62	27	0.06			1,787	3.92
5	7/13-7/14	24	0							27	0.06			1,787	3.92
6	7/15-7/16	24	0							27	0.06			1,787	3.92
7	7/17-7/18	24	0	No fish buyer operated during most of season.						27	0.06			1,787	3.92
8	7/20-7/21	24	0							27	0.06			1,787	3.92
9	7/22-7/23	24	0							27	0.06			1,787	3.92
10	7/24-7/25	24	0							27	0.06			1,787	3.92
11	7/27-7/28	24	0							27	0.06			1,787	3.92
12	7/29-7/30	24	0							27	0.06			1,787	3.92
13	7/31-8/01	24	0							27	0.06			1,787	3.92
14	8/03-8/04	24	0							27	0.06			1,787	3.92
15	8/05-8/06	24	0							27	0.06			1,787	3.92
16	8/07-8/08	24	0							27	0.06			1,787	3.92
17	8/10-8/11	24	0							27	0.06			1,787	3.92
18	8/12-8/13	24	0							27	0.06			1,787	3.92
19	8/14-8/15	24	0							27	0.06			1,787	3.92
20	8/17-8/18	24	0							27	0.06			1,787	3.92
21	8/19-8/20	24	0							27	0.06			1,787	3.92
22	8/21-8/22	24	0							27	0.06			1,787	3.92
23	8/24-8/25	24	0							27	0.06			1,787	3.92
24	8/26-8/27	24	0							27	0.06			1,787	3.92
25	8/28-8/29	24	0							27	0.06			1,787	3.92
26	8/31-9/01	24	0							27	0.06			1,787	3.92
27	9/02-9/03	24	0							27	0.06			1,787	3.92
28	9/04-9/05	24	0							27	0.06			1,787	3.92

No pink or sockeye salmon were sold.

Total hours fished = 72

Total number of permits used = 9

Table 9. Commercial salmon set gillnet catches from Shaktoolik, Subdistrict 5, Norton Sound, 1992.

Period Number	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort								
				Chinook	CPUE	Sockeye	CPUE	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Sockeye	Coho	CPUE	Chum	CPUE
1	7/02-7/04	48	14	188	0.28					3,349	4.98	188	0.28				3,349	4.98
2	7/06-7/08	48	17	314	0.88					5,671	6.95	502	0.34				9,020	6.06
3	7/09-7/11	48	20	152	0.16					5,314	5.54	654	0.27	0	0		14,334	5.86
4	7/13-7/15	48	16	243	0.32	2	0.00	33	0.04	3,976	5.18	897	0.28	2	33	0.04	18,310	5.69
5	7/16-7/18	48	18	72	0.08	0	0.00	97	0.11	1,894	2.19	969	0.24	2	130	0.15	20,204	4.95
6	7/20-7/22	48	23	48	0.04	1	0.00	302	0.27	2,689	2.44	1,017	0.20	3	432	0.22	22,893	4.42
7	7/23-7/25	48	21	36	0.04	2	0.00	526	0.52	1,712	1.70	1,053	0.17	5	957	0.32	24,805	3.97
8	7/27-7/29	48	17	20	0.02	7	0.01	1,030	1.26	1,130	1.38	1,073	0.15	12	1,987	0.52	26,735	3.67
9	7/30-8/01	48	17	13	0.02	16	0.02	1,380	1.69	994	1.22	1,086	0.14	28	3,367	0.73	28,729	3.42
10	8/03-8/05	48	0	DID NOT FISH								1,086	0.14	28	3,367	0.73	28,729	3.42
11	8/06-8/08	48	19	6	0.01	23	0.03	5,547	6.08	701	0.77	1,092	0.13	51	8,914	1.61	27,430	3.14
12	8/10-8/12	48	11	0	0.00	4	0.01	1,817	3.44	157	0.30	1,092	0.12	55	10,731	1.77	27,587	2.98
13	8/13-8/15	48	11	2	0.00	0	0.00	2,093	3.96	80	0.15	1,094	0.11	55	12,824	1.95	27,667	2.83
14	8/17-8/19	48	10	4	0.01	1	0.00	1,856	3.83	200	0.42	1,098	0.11	56	14,660	2.08	27,867	2.71
15	8/20-8/22	48	0	NO BUYER								1,098	0.11	56	14,660	2.08	27,867	2.71
16	8/24-8/26	48	0	NO BUYER								1,098	0.11	56	14,660	2.08	27,867	2.71
17	8/27-8/29	48	0	NO BUYER								1,098	0.11	56	14,660	2.08	27,867	2.71
18	8/31-9/02	48	0	NO BUYER								1,098	0.11	56	14,660	2.08	27,867	2.71
19	9/03-9/05	48	0	NO BUYER								1,098	0.11	56	14,660	2.08	27,867	2.71

No pink salmon were sold.

Total hours actually fished = 624

Total number of permits used = 25

Cumulative coho boat hours began when 100 coho were caught.

Table 10. Commercial salmon set gillnet catches from Unalakleet, Subdistrict 6, Norton Sound, 1992.

Period Numbr	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort							
				Chinook	CPUE	Sockeye	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Sockeye	Coho	CPUE	Chum	CPUE
1	7/02-7/04	48	40	819	0.43	16			12,416	6.47	819	0.43	16	0		12,416	6.47
2	7/06-7/08	48	44	1,416	0.67	10	1	0.00	16,407	7.77	2,235	0.55	26	1		28,823	7.15
3	7/09-7/11	48	44	550	0.26	19	6	0.00	8,293	3.93	2,785	0.45	45	7		37,116	6.04
4	7/13-7/15	48	24	219	0.19	5	40	0.03	2,059	1.79	3,004	0.41	50	47		39,175	5.37
5	7/16-7/18	48	20	80	0.08	2	101	0.11	932	0.97	3,084	0.37	52	148	0.15	40,107	4.86
6	7/20-7/22	48	35	81	0.05	14	1,138	0.68	2,240	1.33	3,165	0.32	66	1,286	0.49	42,347	4.28
7	7/23-7/25	48	32	65	0.04	8	1,734	1.13	1,424	0.93	3,230	0.28	74	3,020	0.72	43,771	3.82
8	7/27-7/29	48	39	44	0.02	19	4,230	2.26	1,638	0.87	3,274	0.25	93	7,250	1.20	45,407	3.40
9	7/30-8/01	48	47	44	0.02	18	11,489	5.09	2,014	0.89	3,318	0.21	111	18,739	2.26	47,421	3.04
10	8/03-8/05	48	47	22	0.01	13	6,625	2.94	1,430	0.63	3,340	0.19	124	25,364	2.40	48,851	2.74
11	8/06-8/08	48	37	11	0.01	19	6,072	3.42	952	0.54	3,351	0.17	143	31,436	2.55	49,803	2.54
12	8/10-8/12	48	39	11	0.01	24	11,906	6.36	905	0.48	3,362	0.16	167	43,342	3.05	50,708	2.36
13	8/13-8/15	48	45	5	0.00	5	11,168	5.17	628	0.29	3,367	0.14	172	54,510	3.33	51,336	2.17
14	8/17-8/19	48	45	4	0.00	5	7,842	3.63	354	0.16	3,371	0.13	177	62,352	3.37	51,690	2.00
15	8/20-8/22	48	53	13	0.01	14	8,399	3.30	406	0.16	3,384	0.12	191	70,751	3.36	52,096	1.84
16	8/24-8/26	48	44	21	0.01	27	9,034	4.28	355	0.17	3,405	0.11	218	79,785	3.44	52,451	1.72
17	8/26-8/28	48	42	4	0.00	11	4,535	2.25	96	0.05	3,409	0.10	229	84,320	3.35	52,547	1.62
18	8/28-8/31	112	1	0	0.00	0	129	1.15	0	0.00	3,409	0.10	229	84,449	3.34	52,547	1.61
19	8/31-9/05	144	0	No Buyer							3,409	0.10	229	84,449	3.34	52,547	1.61

9 fishermen sold 6,284 pink salmon on 7/20 during a special pink period.

Total hours fished = 928

Total number of permits used = 71

Cumulative coho boat hours began when 100 coho were caught.

Salmon buyer did not operate during periods 18 and 19. Fish sold as permitted under Catcher/Seller status during period 18.

Table 11. Salmon survey counts of Norton Sound streams and associated chum salmon escapement goals, 1992.^{ab}

Stream Name	Chinook	Coho	Sockeye	Pink	Chum	Chum Goal
Salmon L.			1,500			
Glacial L.			510			
Sinuk R.		422		292,400	470	4,500
Cripple R.		272		13,650		
Penny R.		53		8,300		
Snake R.		92		24,700	943	1,000
Nome R.	3	691	5	255,700	813	2,000
Flambeau R.					606	3,250
Eldorado R.		113		6,615	4,887	5,250
Bonanza R.		1,209		799,000	80	1,500
Solomon R.		443		37,250	25	550
Fish R.	4			1,387,000	390	17,500
Boston Cr.	68			50,850	1,540	2,500
Niukluk R.		812	2	803,200	7,770	8,000
Ophir Cr.		224				
Kwiniuk R.	524 ^c	532		1,016,222 ^c	11,546 ^c	19,500 ^d
Tubutulik R.	260			138,600	2,595	12,000
Inglutalik R.				27,650	5,739	8,500
Ungalik R.	76			46,000	5,370	2,500
Shaktoolik R.	132	219		310,000	790	11,000
Unalakeet R.						
North R.	329	398		631,140		3,500
Old Woman R.		24				2,000

^a Species identification difficult where large numbers of pinks salmon were observed.

^b Counts should be considered minimums due to variable counting conditions.

^c Preliminary expanded tower counts.

^d Chum goal for tower count.

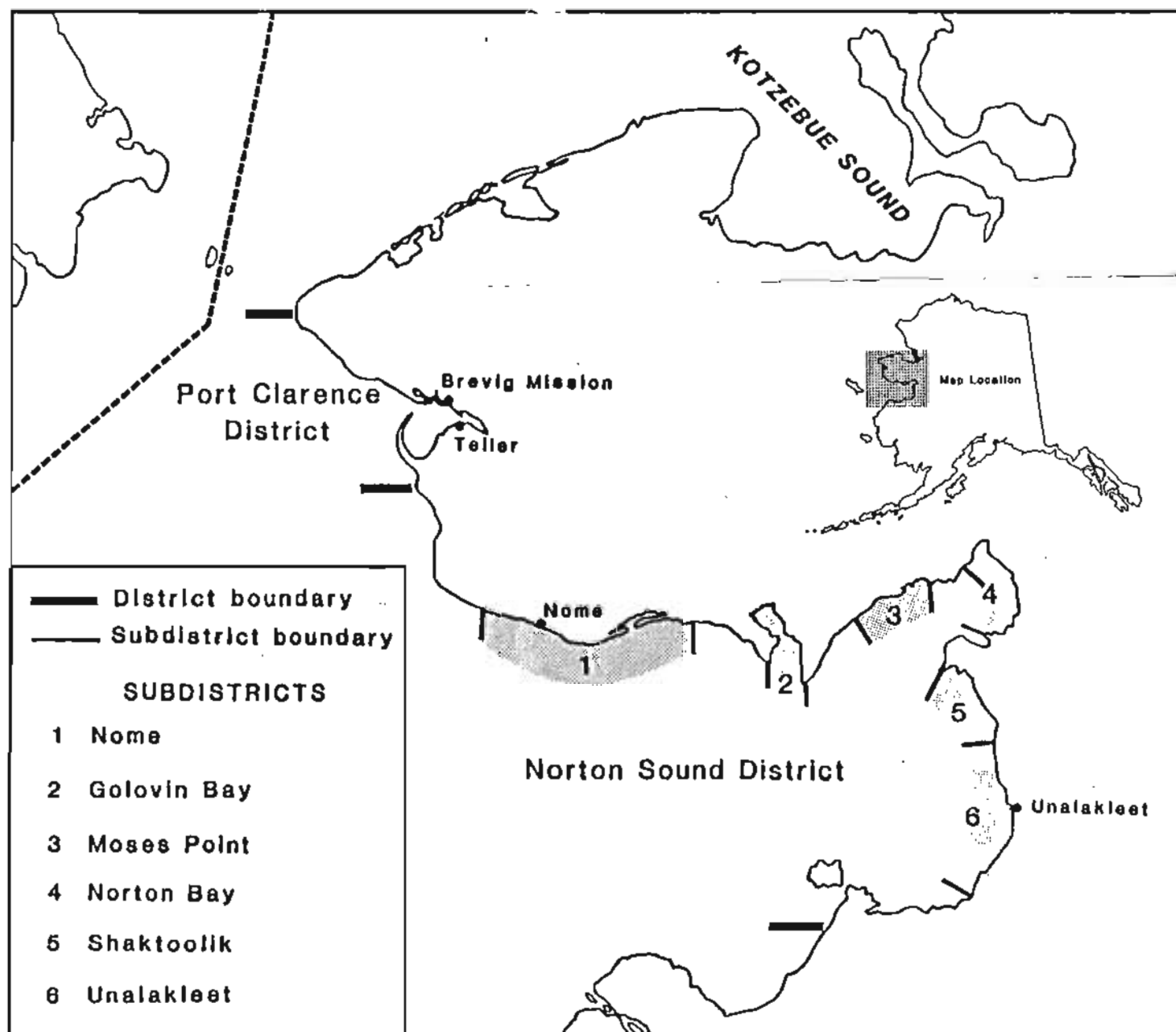


Figure 1. Norton Sound commercial salmon fishing subdistricts.

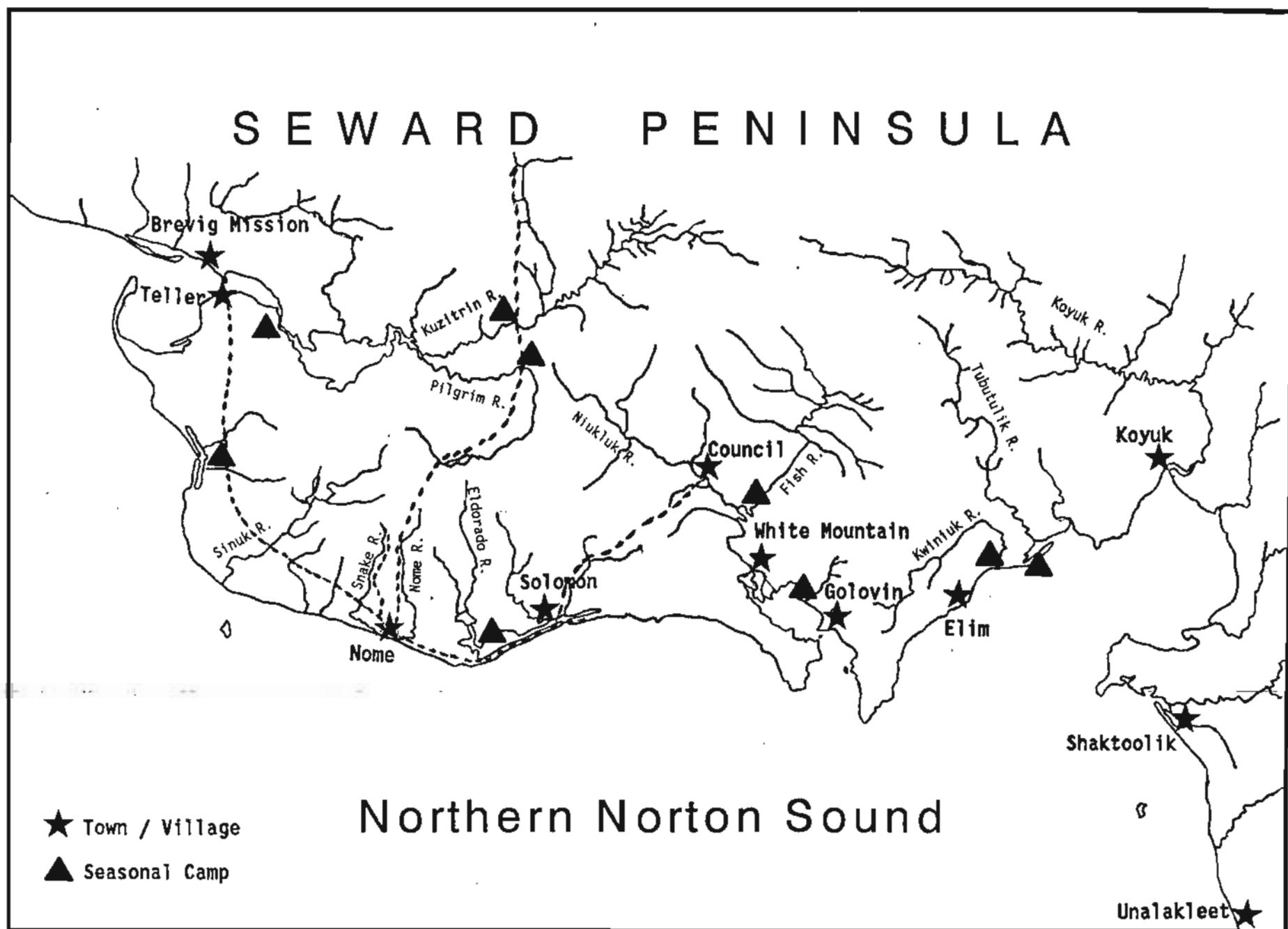


Figure Northern Norton Sound subsistence fishing sites